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ABSTRACT

This presentation outlines a perspective on job analysis and comments on research reported at a symposium with reference to that perspective. The perspective discusses two questions pertaining to job analysis that are referred to as the Stage I and Stage II evaluation operations: What should be done? and How well was it done? Stage I evaluation is described as focusing on choice of a method, including choice of the descriptor or domain, specific job analysis operation to be performed, and data handling/display operations required. The internal and external criterion levels of Stage II evaluation are discussed. Comments regarding evaluation are then made on four papers. It is proposed that the evaluation reported in the first paper focuses on the data-handling aspect of job analysis using a Stage II criterion without specification of purpose. Choice of the criterion is questioned for the second paper, an example of Stage II evaluation using external criteria. The third presentation is described as an approximation of the Stage I evaluation. Its suggestion of a single best method of job analysis is questioned. A fourth paper on job evaluation for compensation purposes is criticized as addressing neither the Stage I nor the Stage II evaluation issue. (ILB)

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SYMPOSIUM COMMENTS AND A PERSPECTIVE
ON JOB ANALYSIS

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Discussant comments made at the Symposium: Job Analysis/Job Families: Current perspectives on research and application. Symposium presented at the meeting of the American Psychological Association, Los Angeles, California, August 24, 1981.

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The purpose of a discussant at a session such as this is generally to place everything in the ultimate perspective, to say something nice about each presentation, and, to finally provide the elegant insights or solutions to the problems presented in terms of conceptualization or designs which will remedy defects (if any) in the presenter's research. At the very least, this is an optimistic objective which I can at best hope to approximate. What I plan to do is, outline a perspective on job analysis which has some implications for these presentations and, comment on each presentation with reference to my perspective. Whether the perspective that I offer stimulates elegant insights, or provides a conceptualization/design to remedy whatever defects might exist in the research presented, can only be judged by the audience.

As this symposium was discussed during the earlier months of this year, I saw the traces of what has become a major concern to me. I can best express that major concern in the form of two quesitons pertaining to job analysis and these are:

I. What should we do?

and later

II. How well did we do?

Both of these are evaluative questions which represent the subject which has become a profound concern in my work on job analysis during the past several years (Prién and Hicks, 1980). The questions, though, are such that in the context of job analysis work, they are addressed at different times and each with a somewhat different focus. In outlining my perspective, I will

refer to these questions as the Stage I and Stage II evaluation operations.

By way of further clarification, there are a variety of purposes or uses of job analysis information which require an evaluation of the method or of the product of the method. These include, among others, content oriented test development of selection techniques, construction of performance evaluation instruments, training program development, training program evaluation, job design, development of career paths, and numerous other personnel actions. Most of these purposes for job analysis applications and, the decisions implicit in them, will eventually be subject to the same sort of rigorous evaluation as are selection procedures. Therefore, the questions of reliability and validity imposed upon selection procedures likewise apply to procedures used for other kinds of decision making. There are, of course, the obvious operations which provide the basis for probability statements which can be interpreted in an evaluative sense. The most obvious are the different approximations of reliability and the extension to convergent and discriminate analysis. The evaluation criterion is the proportion of true variance in the job analyses data and, is at best only a partial criterion. Beyond that, other criteria must be defined and specified which obviously raises the issue of the purpose or objective of the job analysis. One of the problems in developing criteria for job analysis has been the confusion surrounding the process itself. In my perspective, Stage I is the design stage

which involves the selection of a method, while Stage II focuses on the implementation and results of using that method.

In Stage I evaluation we are basically asking the question, "What should we do"? Simply, we should do that job analysis which will provide the information required to develop the solution to the problem. That is, the job analysis should provide the information specific to the intended application. While in the past, I, as well as others, spoke of the simple dichotomy of task versus worker-oriented job analysis, I have come to the conclusion that it is more proper to think in terms of: (a) the choice of the descriptor or the domain, (b) the specific job analysis operation to be performed by incumbents or subject matter experts, and (c) the data handling/display operations required for a particular purpose. (See the attached table for a detailed specification of proposed linkages.) Evaluation in this sense focuses on the choice decisions regarding a, b, and c above, and is based on the assumption that each application requires somewhat different job analysis information. At the present time these choices are based on a logical analysis and, for which no specific statistical operations are available for empirical evaluation.

In Stage II evaluation, we are asking the question, "How well did we do"? This is by far a more complex concern and is addressed at two different levels. These two different levels represent in this context the criterion problem. The first level is what I call the internal criterion level and is represented by the different approximations of reliability and the convergent and

discriminate analysis which can be performed with reference to domains, raters, operations, or situations. Quite a variety of studies have been performed in recent years using one or another measure of an internal criterion concept. The second level utilizes external criteria which are far more difficult to obtain and are specific to the purpose. Two types of studies have been done at this level, those focusing on a single purpose evaluations which absolute judgments are made, and those which involve comparative evaluations with reference to a single purpose. With this perspective in mind, these two stages of evaluation and two levels in Stage II, I offer the comments as follows on the papers presented in this symposium.

In the Cornelius paper, the focus is clearly on Stage I evaluation, approached using what are essentially internal criteria of a Stage II evaluation. Basically, the evaluation focuses on the data-handling aspect of job analysis using a Stage II criterion but without specification of the purpose for which the job analysis is performed. While the results of the data handling indicate considerable convergence, there are differences which may or may not be meaningful but the differences cannot be assessed without developing specific criteria. While the solutions are similar, they are not identical and the adequacy of any one solution depends upon the problem driving the job analysis itself. "What difference does it make"? is a question which is not answered and cannot be answered without further specification of the purpose and consideration of the Stage I evaluation.

In the paper by Pearlman, the emphasis is clearly on the most complex issue and that is Stage II evaluation using external criteria. This is as clear an example of that type of evaluation as exists and is similar to that conducted by Maccormick et. al. (1972) with reference to the Position Analysis Questionnaire. The validity coefficients become the criterion measure with the evaluative operation being a comparative one across occupations. While the statistical tests performed by Pearlman indicate no difference, the only question I have with reference to this study, concerns the criterion data used for the evaluation. In this study, the source of variance represented by the validity coefficients is primarily an abstraction based on measurement of success in training. I suggest that a finding of no difference using an abstract criterion is not as meaningful as one in which the variance represented by the validity coefficients was specific to job content. (Note here that in reply, Frank Schmidt, who delivered the Pearlman paper, did indicate that there was somewhat greater variation in validity coefficients when using job specific measures of performance effectiveness.) Research on criterion development and measurement during the past decades clearly demonstrates the nonequivalence of criterion measures and different patterns of validity relationships for tests when using these different criterion measures. While as indicated above, this is a clear example of Stage II evaluation using external criteria, it is the choice of the criterion which I question in these comments.

In the Levine, Ash, and Hall presentation, the research is clearly an approximation of the Stage I evaluation I described in my perspective. I indicated that this is best approached using a logical analysis, but was approached here using a survey of user opinions regarding the utility of an identified job analysis approach for different purposes. I should note here that each of these standardized job analysis procedures is a fixed combination of descriptions, job analysis operations and, data handling operations. In my perspective I suggest that the more appropriate Stage I evaluation involves the domain, job analysis operation, and the data handling operations. In general, though, the actual results suggest that users do differentiate (as they should) and that users do not assume that any one instrument is a universally applicable to any purpose for which a job analysis is performed. What would have been more informative would have been information about why the identified procedures were rated differently in relation to the referenced job analysis purposes. One of the points of contention was a statement made by Ash, suggesting that there might be a single ideal method. This, of course, runs completely counter to the perspective I presented, which incorporates the assumption that each purpose requires unique job analysis information. What you get out of a job analysis depends upon the choice of descriptor or the domain, the job analysis operations performed, and the procedures used in handling and displaying that job analysis information. Thus I would contend that there is no possibility of a single best method of job analysis.

The presentation by Taylor and Dunham did not lend itself as clearly to comment regarding evaluation as the previous papers. In this instance, there was no indication of a concern for the Stage I evaluation, focusing on choice decisions with reference to a particular purpose. In this instance the PAQ and the PMPQ were the job analysis methods of choice for the purpose of job evaluation for compensation purposes. While considerable attention was devoted to the subject of job evaluation, the requirements for job information for that purpose were not clearly linked back to the choice decisions. What I mean is that the Stage I evaluation issue was simply not addressed. Stage II evaluation also was not addressed unless one accepts the existing salary structure as a criterion, market value as a criterion, or the very weak global judgment of relative job value as a criterion for evaluating calculated job worth. In this area of very considerable controversy today, it would appear to me to be worthwhile to focus attention on criterion development and measurement with reference to the concepts of job worth. In the conventional use of the PAQ for job evaluation purposes, the dominant strategy has been to capture the policy of the market place without questioning the relationship between market price as a criterion and the criterion concepts proposed by various parties at interest to the equal pay or comparable worth controversy. While the different methods of handling data were mentioned, such as capturing the market policy, subjective valuing of dimensions, capturing the policy of management's concept of job worth, et cetera, that part of the discussion was not clearly

linked to the operations actually performed which would have provided a base for discussion.

As a concluding remark, the content and tone of the presentations at this symposium clearly indicate to me that job analysis is moving from the level of an art to a science. While the concerns I raised ten years ago (Prien and Ronan, 1971) have not yet been fully addressed today, efforts are clearly moving in that direction. Research and practice have obviously moved beyond that point of belief that anyone owning a pencil can perform a job analysis, as I suggested a few years ago (Prien, 1977), to the point where researchers and practitioners are posing fundamental questions about what should be done and how well we do it.

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JOB ANALYSIS OPERATIONS

PURPOSE	TASKS	KSA's	NOTES
1. Define Job Domain and Dimensionality	frequency	Importance	- use survey for multiple jobs with incumbents - single jobs use panel of SME's but use thematic classification or retranslation
2. Job Description/ Job Profile	Importance or frequency x importance	Importance	- basic data for job understanding - use data for job clusters
3. Performance Evaluation	frequency	-----	- use data for structure to establish dimensionality for job relatedness of performance behavior domain
4. Performance counseling/ coaching	Importance frequency x criticality	Importance	
	proficiency <u>and</u> Importance	degree of possession <u>and</u> Importance	- proficiency and degree of possession from supervisor/ observer - importance as reconciled by incumbent and supervisor
5. Promotion/ succession	frequency x Importance <u>and</u> normative proficiency required	Importance <u>and</u> normative degree of possession required	- frequency x Importance and Importance are for target job from incumbent - normative--required are from target job from <u>organization panel</u>
For decisions	difference between <u>absolute</u> proficiency possessed/required	difference between <u>absolute</u> possession/ required	or derived through statistical analysis of data referenced to <u>absolute scale</u>

JOB ANALYSIS OPERATIONS (Cont)

PURPOSE	TASKS	KSA's	NOTES
6. Training Program Development - formal training - OJT	frequency x importance x difficulty to achieve proficiency Same but calculate composite reversing the frequency and difficulty to achieve proficiency scales to focus on most frequent and easiest to learn tasks	importance x difficulty to acquire x where acquired or opportunity to acquire same but reverse opportunity scale to focus on KSA's with highest opportunity to learn on the job	- task composite to rank within dimension - KSA composite to rank within dimension - (difficulty to acquire is from panel for across domain reference)
7. Training Needs Assessment - <u>current job skills</u> - <u>target job skills</u>	difference of proficiency required and proficiency attained/possess same	importance x difficulty x opportunity <u>v.</u> degree of possession or degree of possession acquired <u>v.</u> required same	- task proficiency judgements (required and attained) from panel - KSA difficulty from panel - KSA opportunity to learn is position specific - degree of possession required is from panel for across domain reference - normative properties of both individual and job data become critical in this application - possible solution is to link KSA's to reference tasks/job functions or develop instruments anchored using scaled performance behaviors

JOB ANALYSIS OPERATIONS (Cont)

PURPOSE	TASKS	KSA's	NOTES
8. Training Program Effectiveness <u>program</u>	Pre <u>v.</u> Post test on task proficiency with control for content included <u>v.</u> not included	degree of possession Pre <u>v.</u> Post test with control for content included <u>v.</u> not included	- assessment data from self assessment superior assessment peer assessment
<u>Individual</u>	same	same	same
9. Compensation	frequency x importance	importance	- requires representation of management strategy regarding job worth as weighting formula to apply to job profile (dimensions) - no evaluative research available on alternative procedures
10. Organization Analysis/Planning <u>Job Focus/</u> <u>Job Design</u> <u>or Redesign</u>	frequency or importance or criticality or time to achieve proficiency	importance or learning time	- choice of job analysis operation depends on organizational level criteria critical to activity. overall effectiveness efficiency flexibility change adaptation to external constraints etc.
<u>Individual Focus</u>	proficiency scope of proficiency (assignment availability)	degree of possession scope of degree of possession (assessment availability)	- for job design/redesign use task importance and/or frequency judgments in combination with panel judgements of task characteristics to locate (by job) and quantity (by whole job) those job parts needing redistribution, modification, etc. to achieve afternoon design.